CLAIMS

1. Electrode carrier guide, especially for cochlear implants, elongated and substantially flat, which presents a plurality of electrodes (2), each of them connected to a corresponding contact (3) through a conducting track (4), characterized in that it comprises at least two overlapping basic cells (CB, CB'; CB1, CB2, ... CB11), each cell comprising a base layer (11) made of an electrically insulating material on which is arranged a layer (12) made of an electrically conducting material, said electrically conducting material forming said electrodes (2), said conducting tracks (4) and said contacts (3).

2. Guide according to claim 1, wherein each basic cell (CB, CB'; CB1, CB2, ... CB11) has a length shorter than the length of the underlying basic cell (CB, CB'; CB1, CB2, ... CB11).

3. Guide according to claim 2, wherein each basic cell (CB, CB'; CB1, CB2, ... CB11) covers the underlying basic cell (CB, CB'; CB1, CB2, ... CB11), except the electrode region at one end and the contact region at the opposite end.

4. Guide according to any of the preceding claims, wherein each basic cell (CB, CB'; CB1, CB2, ... CB11) comprises an insulating layer (13) arranged on said electrically conducting layer (12), said insulating layer (13) having access openings in correspondence with each electrode (2) and each contact (3).

5. Guide according to claim 4, wherein each cell (CB, CB'; CB1, CB2, ... CB11) insulating layer (13) constitutes the base layer (11) of the overlapping cell (CB, CB'; CB1, CB2, ... CB11).

6. Guide according to any of the preceding claims, wherein at least some basic cells (CB, CB'; CB1, CB2, ... CB11) have three electrodes (2) essentially aligned in the longitudinal direction of the cell.

7. Guide according to any of the preceding claims, wherein said basic cells (CB, CB'; CB1, CB2, ... CB11) have a width ranging from 0,3 to 2,5 mm.

8. Guide according to any of the preceding claims, wherein each basic cell (CB, CB'; CB1, CB2, ... CB11) base layer (11) have a thickness ranging from 2 μm to 5 μm, and said electrically conducting layer (12) have a thickness ranging from 0,1 μm to 0,5 μm.

9. Guide according to any of the preceding claims, wherein the distance between one basic cell (CB, CB'; CB1, CB2, ... CB11) electrodes (2) ranges from 0,25 μm to 10 μm.

10. Guide according to any of the preceding claims, wherein the basic cells (CB') narrow at least in the longitudinal portion where said electrodes (2) are arranged.

11. Guide according to any of the preceding claims, wherein said base layer (11) material is selected among PTFE, PET, poliimide, silicone and paraxylene based polymers.

12. Guide according to any of the preceding claims, wherein said electrically conducting layer (12) is made of a material selected among gold, platinum or a platinum-iridium alloy.

13. Guide according to any of the preceding claims, wherein each cell (CB, CB'; CB1, CB2, ... CB11) comprises a film made of a material suitable for enhancing adherence, arranged between said base layer (11) and said electrically conducting layer (12).

14. Guide according to claim 13, wherein the adhesive biocompatible material is selected among titanium, tantalum, and chrome.

15. Cochlear implant, characterized in that it comprises an electrode carrier guide (G) according to any of the claims 1 to 14.

16. Method for manufacturing electrode carrier guides, characterized in that it comprises a first step of forming one basic cell (CB, CB'; CB1, CB2, ... CB11) of at least one guide (G), having the following sub-steps:

(a) preparing a sacrificial wafer (15);

(b) depositing on said wafer (15) a base layer (11) made of an electrically insulating material;

(c) depositing on said electrically insulating layer (11) a layer of photosensitive resin and photolithografically designing a geometry of electrodes (2), tracks (4) and contacts (3);

(d) depositing on said resin layer a layer (12) made of an electrically conducting material and then removing the resin and the electrically conducting material deposited outside the region of the photolithografically designed geometry;

(e) depositing a second electrically insulating layer (13), completely covering said electrically conducting layer (12); and

(f) forming on said second electrically insulating layer (13) some accesses to the underlying electrodes (2) and contacts (3), by opening access windows by means of photolithographic techniques and carrying out a chemical attack; and

in that the sub-steps (c) to (f) are repeated on as much times as basic cells (CB, CB'; CB1, CB2, ... CB11) are intended to be piled up on each guide (G), and in that finally said sacrificial wafer (15) is removed.

17. Method according to claim 16, wherein at least two electrode carrier guides (G) are formed on the wafer (15), said method further comprising a step of separating said guides (G) from each other by cutting the wafer (15).

18. Method according to claim 16, wherein at least two electrode carrier guides (G) are formed on the wafer (15), and wherein in said sub-step (f) are also designed access windows opened for removing the electrically insulating material being between every two adjacent guides (G), in order to define the form of said guides (G) and to have them separated from each other on the wafer (15).

19. Method according to any of the claims 16 to 18, wherein at least some of the sub-steps (b), (c), (e) and (f) comprise processes for curing the material.

20. Method according to any of the claims 16 to 19, wherein said sub-step (d) comprises depositing a film of a material enhancing adherence between said resin layer and said electrically conducting layer (12).